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BUSINESS ISSUE BRIEF

Controlling Your Business Costs with Networked Telephony: How to Calculate the Total Cost of a 3Com® NBX® Solution and Alternative Solutions

Executive Summary

When your organization relies heavily on telephone communications, the telephone system affects your business in three ways: employee productivity, customer satisfaction, and dollar cost. Your investment in a phone system directly impacts the bottom line.

Have you missed or lost any calls from important customers?

Does the telephone system help your business do more with fewer resources?

Does it let your organization respond to change quickly? Cost-effectively?

An investment in the right phone system will produce both quick and ongoing returns. It will support your strategic goals. It will strengthen your competitive advantages. As businesses using a 3Com® NBX® networked telephony solution will tell you, it will do one or more of the following:

- Reduce the costs of doing business
- Increase organizational flexibility
- Accelerate the business's pace
- Improve customer satisfaction
- Increase revenues

Making the best telephone system investment is a three-step process:

1. Identifying your company's business and technical requirements for a telephone system today—and tomorrow—then evaluating different systems' features against these requirements.
2. Analyzing the systems' total cost of ownership (TCO)—the actual cost to implement and scale a system (add applications, upgrade, and add users). With standard TCO criteria, you can directly compare the costs and payback periods of different systems.
3. Receiving a product demonstration and customer references to ensure that the proposed system functions as promised.

This business issue brief focuses on step 2*. Calculating the costs of a telephone system is notoriously complex, and can be fraught with inaccuracy due to hidden costs and inconsistent terminology. This paper corrects the calculation process by eliminating vendor-specific terminology and arcane technical terms, and clearly defining all the cost factors incurred by the majority of organizations now purchasing a telephone system—businesses that have up to 1,000 telephone users at a single site†.

Using this complete list of cost factors lets you directly compare different vendors' systems. More often than not, the TCO of a 3Com NBX networked telephony system will be much lower than that of other systems; it will also deliver a faster payback (ROI). This is because the NBX solution:

- Converges voice and data networks onto a single existing network infrastructure
- Lets you quickly and cost-effectively add users and implement applications
- Runs a wide range of business applications today, and enables powerful emerging applications
- Is an open architecture solution
- Is low cost to manage and administer
- Is easy for both on-site employees and telecommuters to use
- Gives you control of system changes
- Helps your business do more with less

Reading this paper, you will gain insight into the real costs of a telephone system. You will see that by investing in an NBX solution‡, your organization will spend less money, enjoy a faster payback period, and gain control over its business communications.

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*Resources for steps #1 and #3 are available on www.3com.com and from 3Com NBX Voice Authorized Partners.

†For a business that has multiple sites, such as branch or regional offices, or where call center or unified messaging applications are used, the TCO of the telephony system is different. The value equation of a 3Com NBX networked telephony solution is even more compelling in these environments. For more information, see your 3Com NBX Voice Authorized Partner.

‡Specifically an NBX system with R4.1 software, which is the reference for capabilities and costs discussed in this paper.

How to Calculate the Total Cost of a 3Com® NBX® Solution and Alternative Solutions

GLOSSARY

AMIS Audio Messaging Interchange Specification

ANI Automatic Number Identification

ASR Automatic Speech Recognition

CoS Class of Service

CDR Call Detail Recording

CRM Customer Relationship Management

CTI Computer Telephony Integration

DNIS Dialed Number Identification Service

DoS Denial of Service

HVAC Heating, Ventilation, and Air-Conditioning system

IGMP Internet Group Management Protocol

IMAP4 Internet Messaging Access Protocol version 4

IP The Internet Protocol (Layer 3 of the OSI protocol stack)

ISDN Integrated Services Digital Network

IVR Interactive Voice Response

LAN Local Area Network

MAC media access control (in Layer 2 of the OSI protocol stack)

MACs Moves, Adds, and Changes

OSI the international Open Systems Interconnection reference model

PBX Private Branch Exchange

PSTN Public Switched Telephone Network

QoS Quality of Service

ROI Return on Investment

SMTP Simple Mail Transfer Protocol

TAPI Telephone Application Programming Interface (or Microsoft/Intel Telephony API)

TCO Total Cost of Ownership

TDM Time Division Multiplexing (a switching matrix used by traditional PBXs)

TTS Text-to-Speech

VoIP Voice over Internet Protocol

VPIM Voice Profile for Internet Messaging

WAN Wide Area Network

WAV Wave file (Microsoft Windows format for encoding sound)

As a business executive, you need to know the absolute and comparative value of your telephone system. Why? Because your phone is an essential tool: your business's ability to communicate effectively depends on it. Its impact on the bottom line is immediate and ongoing. The ROI depends on the system's increases to productivity and revenues, and its cost.

It would be disingenuous to say the cost of your telephone system is its purchase price. Its true cost is the TCO—aggregate costs for system implementation, administration, upgrades, expansion, and other changes such as adding users and applications.

This paper clearly defines the cost factors that comprise the TCO of a telephone system for a business with up to 1,000 telephone users at a single site, an Ethernet LAN in place, and a desire to support telecommuters. These are the businesses installing the vast majority of IP telephony systems today.*

Compare the TCO of a 3Com NBX networked telephony solution† to that of any other system; the dollars saved and value added by an NBX system manifest quickly. At the end of this paper, we have provided a spreadsheet to speed calculation.

First, we will define the factors for calculation: your business's telephone system requirements—today and tomorrow—and their costs.

Your Needs for a Telephony System, Today and Tomorrow

What are your business's needs for a telephone system now? In the years ahead?

Your Requirements Today

At minimum, your system must provide reliable telephone service that connects employees at your site to one another and the world beyond.

Until a few years ago, there were just two ways to do this: with a Centrex subscription or a traditional PBX. Unfortunately, neither was designed to work with the data networks—LANs, WANs, and the Internet—now ubiquitous in business. Furthermore, neither is based on industry-standard technology. Their proprietary technologies make it difficult and expensive for a business to make changes—to add or move users, shift services, and integrate applications.

Business phone service changed irreversibly in 1997 with the introduction of the 3Com NBX networked telephony solution. The first system to converge telephone and data networks, it allows voice traffic to travel in real-time as either Ethernet or IP data packets. A business with an NBX system gets all the services of a traditional PBX, plus:

- The ability to easily add powerful CTI applications such as CRM, call centers, and unified communications
- The savings of converging voice and data networks onto a single network

Small and midsize businesses are the biggest fans of IP telephony—their LANs are ready to support it without major upgrades. Surprisingly, IP telephony does not add much bandwidth onto the LAN—only about 1.12 Mbps for 10 concurrent conversations (using G.711 uncompressed audio). VoIP is reliable even across shared low-bandwidth circuits.

A business can acquire an IP telephony system in one of three designs:

- IP-PBX system: an IP gateway and/or IP cards added onto a traditional TDM PBX; all are proprietary systems
- Office in a Box: based on less-than-reliable operating systems, all-new dedicated routers, switches, and feature-less phones; most are proprietary PC-based systems
- 3Com NBX networked telephony system: similar to an IP-PBX but processes voice dynamically over Ethernet and/or IP and is standards-based (not a proprietary system); it's easier to use and administer, and integrates applications faster, at a lower cost

*For more information, see your 3Com NBX Voice Authorized Partner.

†Especially an NBX system with R4.1 software, which is the reference for capabilities and costs discussed in this paper.

This paper assumes that your business has an Ethernet LAN. If not, you can either connect an NBX system to your analog phones or use it to create an instant LAN (NBX phones have built-in Ethernet ports that let your users share printers, files, and Internet access).

Requirements for Tomorrow

Whatever planning you do, you can be certain that your business will change in unforeseen ways. Will your telephony system help you react quickly and cost-effectively? Or will the torque of change careen your business's voice and data communications off-track?

Your organization will make organizational and staffing changes that cause many MACs among employees. The system should make your MACs fast and inexpensive.

Your business may focus on new markets. It will certainly address customers in different ways. New CTI applications address customers faster and better, at less cost. These applications are built on voice/data standards such as TAPI and TAPI/WAV. Having a telephony system that supports them ensures you can easily integrate new applications.

Your business may need to disperse or expand to multiple sites. Having a phone system that can quickly integrate multiple sites will save you many dollars in deployment and telecommunications costs.

Facing a future of change, businesses can react quickly and cost-effectively with a 3Com NBX telephony system.

Identifying the Real Costs of Owning a Telephony System

The TCO of a telephony system is the sum of the following factors.

Infrastructure Costs

What's the real cost of having two networks—one for voice, one for data?

At your site, every telephone system requires a framework—an infrastructure—of network equipment and wiring to carry voice communications. This wiring runs from the phone system chassis/cabinet to and from all your users' phones or softphones.

Traditional PBX systems require their own dedicated voice infrastructure; the data network (LAN) wiring and equipment—switches, routers, gateways—must be completely separate.

A 3Com NBX system eliminates the costs and complexity of owning two infrastructures by converging the voice and data networks onto one. The result: you can halve infrastructure capital expenses and operational costs; you also cut future costs for expanding your networks and integrating applications.

This voice-over-data network can operate on a shared Ethernet (10 Mbps) LAN, but having a switched Ethernet (10/100 Mbps) LAN with a voice-enabled Layer 4 switch (such as the 3Com SuperStack® 3 Switch 4400) brings you the benefits of maximum wire speed, automatic switching, and toll-call QoS.

Core System Costs

What are the core up-front costs? The costs to add capacity?

The core system costs include:

- The telephony system's chassis/cabinet and call processor
- Hardware and software for processing voice over Ethernet and/or IP
- Phone cards ("station cards") that connect the chassis/cabinet to users' telephones and PCs
- Operating system software
- System administration/management software and hardware
- A power supply, and for maximum availability, redundant power supply and system disk mirroring
- HVAC
- A security system

Added to this list are the often overlooked costs of system installation and "scaling" (adding more users). Unlike PBXs and IP-PBXs that demand additional proprietary equipment and installation charges, the 3Com NBX core system scales from one to over 1,000 users with the same system software, hardware, and applications—yielding huge cost savings. The savings in station cards and corresponding chassis/cabinet slots alone can be tens of thousands of dollars. The NBX system further cuts costs by having more built-in functionality

Art and Science, Hard and Soft Dollars

Calculating TCO is both a science and an art

- The science: Quantifying known expense factors
- The art: Anticipating your future capacity and productivity needs

Calculating ROI involves "hard" and "soft" dollars

- Hard dollars: Costs for applications, capital equipment, system software, transmission of voice and data, materials, system administration and all other services
- Soft dollars: Business benefits in productivity, revenues, customer satisfaction, or other competitive advantages

(such as network monitoring, asset management, and system administration software, as well as IP telephony capabilities), needing no additional security system for Ethernet operation, and not requiring special HVAC.

Costs for Connecting to the PSTN

How much will the line connections and their associated services cost?

To carry voice (or voice and data) communications, the core system requires hardware (such as a gateway, switch, and line cards) that connects it to the PSTN and/or WAN. For a circuit-switched PSTN connection, choices include analog lines; ISDN BRI-ST, T1/PRI, and E1/PRI digital circuits, as well as PRI/QSIG service.

The PSTN line cards for a 3Com NBX system are so feature-rich, and so easy to install and maintain, that they eliminate many of the costs incurred with a PBX or IP-PBX. One example: NBX line cards have Caller ID, E911, DNIS/ANI, and PRI/QSIG services built in, saving thousands of dollars.

Costs for Telephones, Softphones, and Attendant Consoles

What choice do you get in telephones and phone features?

For a PBX or an IP-PBX, the only phone options are standard analog and proprietary digital phones, plus softphones. With a 3Com NBX system, the options are standard analog phones, standard digital phones, softphones, and intelligent IP/Ethernet 3Com NBX phones. NBX Solution Providers widen the choices to include certain legacy proprietary digital phones—with NBX, you can even leverage an investment made in legacy phone sets.

3Com NBX phones are self-locating phones that plug into any Ethernet LAN port. They also include a built-in connector for PCs or laptops. Operating as Layer 2 (Ethernet) or Layer 3 (IP) devices, they are available with a range of features, from the simplest to highly custom-programmable.

All telephone systems offer an attendant console that lets users monitor staff availability and manage the calls for an entire organization. Optional NBX software adds a PC software client for faster call transfers and directory inquiries.

Costs of the Voice Messaging Application

Have you ever missed a phone call from a frustrated customer?

How many receptionists does your business have? Why?

How much does it cost to add more voicemail capacity or directory menus?

Voice messaging—voicemail (VM) and automated attendant (AA)—is the primary application used in telephone systems. Traditionally, however, these have been expensive add-ons.

The 3Com NBX telephony system has the voice messaging application built in—there's no need to buy a separate application (but if you do, an NBX license can connect it). With a PBX or IP-PBX system, you must buy voice messaging as a separate application, for an added cost.

The cost of a voice messaging application depends on its:

- Functionality
- Compliance with the standards (such as VPIM and IMAP4) required for related applications.
- VM capacity (ports and storage)
- Number of multilevel AAs (greetings, menu choices, and submenus)
- Ability to meet future needs, such as adding capacity

The voice messaging application built into the NBX system includes customizable call routing and hunt-and-call groups, which when combined with the multilevel AAs will establish an informal call center—ensuring that incoming calls are routed to the right person. It also includes IMAP4 clients so employees can combine and manage their voicemail and e-mail messages efficiently in one mailbox. What's more, adding VM or AA capacity is a simple software upgrade, eliminating costly service calls and service outages.

When you're away from the office, will you miss an important call? Not with an NBX system: its off-site notification feature will send a message—to your cell phone, pager, laptop, or other SMTP device.

The Cost of Supporting a Local Language

Do you have to pay a premium to speak your language?

The 3Com NBX system has built-in VM/AA support for 11 different languages. With just a few browser moves, your administrator can implement any one of the languages; there's no special expertise required and no extra cost.

Call Detail Reporting Costs

Why did the phone bill go up 30 percent last quarter?

Is your business making the best use of its circuits?

CDR monitors system usage (by one or more employees or others during any time period) and shows your organization's usage of line capacity. It lets you set policies, configure the system, and take other actions to control your telephone expenses.

The 3Com NBX system has built-in CDR features that let you use your web browser to easily track who is using the phone, restrict access to long-distance or international calls, and identify toll fraud. You can assign account codes, measure how much of a PSTN circuit your organization is using, and periodically present your carrier with the utilization information needed to lower line costs.

Costs for Supporting CTI

What does it cost to implement a CRM, call center, or other CTI application?

Using CTI applications—such as CRM, ASR, TTS, call centers, and unified messaging—dramatically improves employee productivity and makes for the most effective "customer touch" experience.

These applications are based on the TAPI 2.x and TAPI/WAV protocols—the same protocols at the foundation of the 3Com NBX system. This makes it the ideal CTI platform. A built-in NBX TAPI dialer makes outbound on-screen dialing, inbound screen "pops" from your contact database, Act!, and similar applications easy and low-cost to implement—all it takes is a few mouse clicks.

With many telephone systems, the costs to implement a packaged CTI application are two to three times the price of the software. The NBX system makes these implementation costs negligible.

Costs for Supporting Telecommuters

How much time and money would it take to connect an employee to work at home?

To enable your employees to work at home or be available 24/7, the telephony system should connect them as easily and inexpensively as your data network does.

Wherever your employee has one, two, or even three devices (phones or PCs) that need to be integrated with the core NBX system, all that's needed is a routed IP connection (such as a standard DSL router, ISDN router, or cable modem) and software. Linking the devices locally over an Ethernet LAN, the employee can plug in an NBX phone anywhere on it. With the NBX system, employees have access to the same telephone features and applications they would use in the office, such as easy call transferring; to an outside caller they will seem to be at the central site.

The NBX system makes it all this simple. It requires no special programming, special hardware, adapters, or technicians to integrate the remote telephones.

System Administration Costs

How much will a qualified administrator cost?

How will the telephone system be managed during a severe weather day?

Every telephony system requires a trained administrator, who may be outsourced or an employee. The administrator is responsible for ensuring optimal operation of the system by monitoring, updating, troubleshooting, and managing it, as well as assisting users.

Finding and retaining skilled system administrators is costly, especially when the system requires a specialist. PBXs demand specialists who have undergone costly training programs; some IP-PBXs also require expensive Cisco- and/or Microsoft MCSE-certified administrators.

Designed to simplify administration, an NBX system can save you tens of thousands of dollars in training costs. Any administrator can quickly and easily view system configurations and perform advanced functions, using the browser-based 3Com NBX NetSet™ utility. Remote management requires only a simple LAN dialup connection.

When it is impossible to get into the office, the administrator easily reprograms the company's AA greeting remotely. Outgoing messages can be changed on demand to communicate timely information efficiently. It's also easy to remotely adjust the system's call routing for different times of day to ensure that incoming calls for critical groups like sales are answered effectively.

The Extra Value of 3Com NBX Networked Telephony

Your business gains control over its communications because the NBX system:

- Is open architecture (based on industry standards, not proprietary technology)
- Converges voice and data traffic onto a single existing (Ethernet or IP) network infrastructure—reducing equipment, service, and labor costs
- Supports an extensive range of business applications today
- Enables powerful emerging applications
- Is low cost to manage and administer
- Is easy for both on-site employees and telecommuters to use

Costs for Moves, Adds, Changes (MACs)
What do you pay to move just one user's phone?

How long does it take to provide phone service for a new manager?

How much time and money does it take to train a phone user?

MACs are a major—but often unforeseen—recurring cost of a voice or data network. Each year, a business will on average move, add, or change 20 percent of its telephony system users' devices (telephones and PCs). The cost for a single device move can easily exceed U.S. $100, plus the user's lost productivity cost. MACs are the most expensive with a traditional PBX system, which requires dispatch and labor charges for a technician to install and command-line program the user's device, as well as rewire the cabling, plus trip charges for the tech to visit both the departed and new locations.

The NBX system is designed to reduce MAC costs: your employees can move and install their phones themselves. NBX phones are plug and play—they plug directly into the Ethernet jack in the user's office, they self-locate (automatically discover and assign the extension, CoS, and user profile), and users can easily program them using a Web browser.

Moving a phone and a PC on an NBX system takes only a fraction of the time it takes on a traditional PBX. The ease and low cost of moving NBX phones lets a business easily "hotel" or "hot desk" employees (such as visiting managers and salespeople) in whatever office spaces are available.

Documentation Costs
What's the real price of paper?

Surprisingly, manuals and guides can add up to a substantial cost—especially when the soft dollar cost of ordering, distributing, and having to understand them is calculated.

There's no need to push all that paper. The browser-based NBX NetSet utility in the NBX system makes training simple and straightforward. With a few mouse clicks, users program their own phones. And because NBX phones are intelligent network devices, they stay programmed, even when moved. Whenever users or administrators want more information, they can quickly refer to the easy-to-use online help function, manuals, and guides built into every NBX networked telephony system.

Conclusion

Insight into the TCO of a telephony system reveals the unprecedented immediate cost savings that an NBX system can bring your business—lower capital expenses, staffing, and applications costs. You also see the significant savings it can deliver on an ongoing basis—increased employee productivity, faster customer service, and lower costs for network operations and expansion. And you can appreciate the long-term strategic benefits of an NBX system—it enables your business to be more flexible, accelerate its pace, and generate more revenue.

To calculate the TCO of a telephony solution for your business, turn the page and use the printed or online spreadsheet. You can compare the TCO of a 3Com NBX telephony solution to another system's. You can also use the TCO to measure the payback period for your investment (ROI) For more information or assistance, contact your NBX Voice Authorized Partner.

Calculating the TCO of a Telephony System

	Qty. 3Com	Qty. Other	3Com NBX Unit Cost	Other Offer Unit Cost	3Com NBX Total Cost	Other Offer Total Cost
Infrastructure Costs						
Voice wire runs						
Data wire runs						
Intermediate Distribution Frame						
Main Distribution Frame						
Jumper/patch panels						
Data network equipment						
Ethernet switches						
Routers						
Hubs						
Other costs (specify):						
SUBTOTAL						
Core System Costs						
Chassis/cabinet/call processor						
Chassis/cabinet						
Call processor						
Call processing software						
IP telephony (VoIP)						
System software						
Connection to proprietary TDM PBX						
IP trunking						
IP gateway card						
Installation						
To add *n* connections						
VoIP gateway soft/hardware						
H.323 gateway soft/hardware						
Server and licenses						
Gateway licenses						
Gatekeeper licenses						
3rd party gateway appliance						
Phone (station) cards						
n analog phone cards						
n digital phone cards						
n proprietary phone cards						
Power supply and redundancy						
Management/Administration						
Management software			Included		Included	
Administration terminal/PC						
GUI for administration			Included		Included	
GUI for user programming			Included		Included	
Security						
Secure remote access						
Denial of Service (DoS) protection			N/A		N/A	
Toll Fraud protection						
Virus protection, management			N/A		N/A	
Firewall						
Security management			N/A		N/A	

	Qty. 3Com	Qty. Other	3Com NBX Unit Cost	Other Offer Unit Cost	3Com NBX Total Cost	Other Offer Total Cost
Additional HVAC required for equipment's BTU output						
Other costs (specify):						
SUBTOTAL						
Costs for Connecting to PSTN						
Analog line (trunk) cards						
Line cards and software						
Other hardware required						
T1/E1 digital line (trunk) cards						
Line cards and software						
PRI support						
Other hardware required						
ISDN BRI-ST line (trunk) cards						
Line cards and software						
Other hardware required						
ISDN-PRI						
QSIG software, hardware						
Support for services						
DNIS/ANI						
Caller ID						
E911 software, hardware						
Other costs (specify):						
SUBTOTAL						
Costs for Telephones, Softphones, and Attendant Consoles						
Analog phone sets						
Basic/multibutton/executive						
Digital phone sets						
Basic/multibutton/executive						
IP/Ethenet phone sets						
Basic/multibutton/executive						
Phone features						
Add data to phone sets						
External alerts						
Paging and music adapters			Included		Included	
Softphones						
Software for PCs, laptops						
Attendant Consoles						
Attendant console sets						
Direct Station Select						
Connect phones, consoles, PCs						
Wall jacks						
PC connections			Included		Included	
Other costs (specify):						
SUBTOTAL						

	Qty. 3Com	Qty. Other	3Com NBX Unit Cost	Other Offer Unit Cost	3Com NBX Total Cost	Other Offer Total Cost
Costs for the Voice Messaging Application						
Auto Attendant (AA) application						
AA ports configured						
To add *n* AA ports						
Number of multilevel AAs						
Greetings						
Menus						
Submenus			Included		Included	
Voicemail (VM) application						
Mailbox capacity						
VM mailboxes configured						
To add *n* mailboxes						
Message storage capacity						
Hours configured						
To add *n* hours						
Support for IMAP4 clients			Included		Included	
VM networking capabilities						
AMIS support						
VPIM support						
Digital connectivity						
Other costs (specify):						
SUBTOTAL						
Costs of Supporting Local Languages						
Cost per language onto system			Included		Included	
Implementation of VM/AA prompts			Included		Included	
Other costs (specify):						
SUBTOTAL						
Call Detail Reporting Costs						
Software			Included		Included	
Graphic reports			Included		Included	
Other costs (specify):						
SUBTOTAL						
Costs for Supporting Computer Telephony (CTI)						
TAPI adapters						
For system and phones			Included		Included	
For desktop PCs						
TAPI software						
For system and desktop PCs			Included		Included	
For phones						
TAPI.wav support						
Other costs (specify):						
SUBTOTAL						

	Qty. 3Com	Qty. Other	3Com NBX Unit Cost	Other Offer Unit Cost	3Com NBX Total Cost	Other Offer Total Cost
Costs for Supporting Telecommuters						
Connecting remote workers						
Phone/PC adapters			Included		Included	
Software required			Included		Included	
Connection to worker						
Voice/Data capability			Included		Included	
Remote hardware required						
Cost to integrate w/Core System						
Core system software						
System adapters			Included		Included	
Additional programming						
Routed IP connections						
Remote chassis						
Remote software						
Network link to location						
Other costs (specify:)						
SUBTOTAL						
System Administration Costs						
Voice network administrator						
Data network administrator						
Training the administrator(s)						
Required certifications			NA		NA	
Other costs (specify:)						
SUBTOTAL						
Costs for Moves, Adds, Changes (MACs)						
Technician dispatch						
Stndrd, Premium, Emergncy						
Technician trip charge						
Stndrd, Premium, Emergncy						
Technician hourly rate:						
Stndrd, Premium, Emergncy						
The average costs for one move:						
Time required						
Material costs						
Aftermarket price for labor						
Aftermarket price for equip.						
Cost of lost productivity						
Other costs (specify:)						
Total # of expected MACs/year						
SUBTOTAL						
Documentation Costs						
Administrator manuals						
End User Manuals						
Adjunct manuals						
Other costs (specify:)						
SUBTOTAL						

TOTAL COST OF OWNERSHIP						

Related References

Customer case studies
www.3com.com/nbx_customer_case_studies

Awards won by 3Com NBX solutions
www.3com.com/nbx_awards

3Com Corporation home site
www.3Com.com

For More Information

3Com NBX networked telephony solutions are available from NBX Voice Authorized Partners in over 61 countries with voicemail prompts and end-user documentation in 11 languages.

For additional product information, visit www.3com.com.

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To learn more about 3Com solutions, visit www.3com.com. 3Com Corporation is publicly traded on Nasdaq under the symbol COMS..

503113-002 01/03